UNITED STATES PATENT AND TRADEMARK OFFICE

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RYMAN, DANIEL J

ART UNIT	PAPER NUMBER
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DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _17 March 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-3,5-17 and 19-27_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,5-17 and 19-27_ is/are rejected.

7)☒ Claim(s) _5,10,19,23, and 24_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _23 May 2000_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892).

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _12_.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The amendments to the specification correct only one of the two objections to the drawings. Therefore the objections to the drawings are maintained.

2.   On page 12 of the Response, Applicant traverses the rejection of claims 10 and 24 under 35 U.S.C. § 112 as being indefinite. Applicant argues that the term "a small number" is not indefinite since one of ordinary skill in the art would be able to distinguish a small number from a number that is not small in this context. Applicant goes on to note that Flammer discloses "a small group of nodes" in col. 1, line 36. Examiner, respectfully, disagrees with Applicant's argument. Examiner submits that the purpose of the claims is to define the metes and bounds of the claimed invention. The term "a small number" is indefinite since the claims do not clearly define what numbers constitute "a small number". In other words, it is not clear from the claims at what point a number goes from being a small number to being a number that is not small. Such a precise definition is required in order to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example, Applicant could precisely claim such a concept using language like "the number of nodes is less than a predetermined number where the predetermined number has a value of 12." In addition, Examiner notes that Flammer's use of "a small group of nodes" does not occur in the claims. While such imprecise language is acceptable in the specification, the claims require much more distinct language. Therefore the rejection of claims 10 and 24 under 35 U.S.C. § 112 is maintained.

3.   Applicant's arguments filed 3/17/2004 have been fully considered but they are not persuasive. On page 15, Applicant argues that since Flammer is directed to minimizing the effect

of rebroadcasting of broadcast packets, and not the discovery of cooperating nodes, it would not have been obvious to combine Flammer with Brady to reach the claimed invention. Examiner, respectfully, disagrees. While the inventive teachings of Flammer may be directed to minimizing the effect of rebroadcasting broadcast packets, the teachings of Flammer relied upon by Examiner are disclosed in the prior art section of Flammer. As such, the teachings of Flammer relied upon by Examiner are not specifically directed to the rebroadcasting of broadcast packets, but rather, these teachings should have been part of the general knowledge of one of ordinary skill in the art.

4.   As Applicant admits, Brady transmits a query to all immediate neighbor nodes (broadcast). Flammer teaches, as prior art, that it is well known to decrease overload in a network during a broadcast by "selectively but randomly address[ing] a small group of nodes in a reception region" (col. 1, lines 53-57). Thus, Examiner maintains that it would have been obvious to one of ordinary skill in the art at the time of the invention to realize that the load on the network caused by the broadcast in Brady could be reduced by "selectively but randomly address[ing] a small group of nodes in a reception region" (Flammer: col. 1, lines 55-57) since this is a well known technique to reduce overload in a network, as is evidenced by Flammer.

5.   Applicant further argues on page 15 of the Response that Flammer teaches away from "selectively but randomly address[ing] a small group of nodes in a reception region" (Flammer: col. 1, lines 55-57) since Flammer states that this "runs counter to the intention to broadcast a packet throughout a network" (Flammer: col. 1, lines 58-60). Examiner, respectfully, submits that the teachings of Brady are not directed to broadcast a packet throughout a network. As such, Flammer's teachings against using random addressing are not pertinent to the combination. Thus,

Examiner maintains that Flammer does not teach against the combination of Flammer's random address teachings and the teachings of Brady.

6.   On page 16 of the Response, Applicant argues that neither Flammer nor Brady teach or suggest the benefits of random or pseudorandom node selection. Examiner, respectfully, disagrees. Flammer explicitly teaches that the method of random addressing solves the overload problem by reducing the number of packets in circulation (Flammer: col. 1, lines 53-58). As such, Examiner maintains that the combination of Flammer and Brady teaches benefits of random node selection.

7.   Given the above arguments, Examiner maintains that the combination of Flammer and Brady is proper and that such a combination teaches the limitations of the claims. Applicant is urged to amend the claims in order to add limitations which will distinguish the claims from the prior art.

Drawings

8.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: step 40 (see Fig. 9 and pages 23-24). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

9.   Claims 5, 10, 19, 23, and 24 are objected to because of the following informalities: in lines 1-2 "wherein step (a) comprises choosing by a first node" should be "wherein step (a)

comprises randomly or pseudorandomly choosing by a first node". Appropriate correction is

required.

Claim Rejections - 35 USC § 112

10. Claims 10 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

11. The term "a small number" in claims 10 and 24 is a relative term which renders the claim

indefinite. The term "a small number" is not defined by the claim, the specification does not

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would

not be reasonably apprised of the scope of the invention. For the purposes of prior art rejections,

the term "a small number" will be broadly interpreted.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

13. Claims 1-3, 5-17, and 19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Brady (USPN 6,041,049) in view of Flammer (USPN 5,007,052).

14. Regarding claims 1 and 14, Brady teaches a method and system for discovery of

cooperating nodes in a network of nodes in which each cooperating node has information about

at least one other cooperating node (col. 2, lines 48-67), the method comprising the steps of and

the system comprising means for: (a) selecting, by a first node, from cooperating node

information available to the first node, a second node (col. 2, lines 48-67); (b) transmitting from the first node to the second node at least a portion of the cooperating node information available to the first node (col. 2, lines 48-67); (c) periodically repeating steps (a) and (b) (col. 2, lines 48-67). Brady does not expressly disclose that the selecting is done either randomly or pesudorandomly. Flammer teaches, in a system for broadcasting information (transmitting to all neighbor nodes), that it is well known in the art to decrease overload in a network during a broadcast by "selectively but randomly address[ing] a small group of nodes in a reception region" (col. 1, lines 53-57). The combination of Brady and Flammer suggests randomly selecting a single neighbor node or a set of neighbor nodes from the entire list of neighbor nodes in order to reduce the overhead in the system at the cost of increasing the amount of time (increasing the number of repeated steps) it takes to determine the topology of the network. It would have been obvious to one of ordinary skill in the art at the time of the invention to randomly choose by a first node, from cooperating node information available to the first node, a second cooperating node in order to decrease the bandwidth used by the system to determine the topology of the system.

15.   Regarding claim 2, referring to claim 1, Brady in view of Flammer discloses that step (a) comprises randomly choosing by a first node, from cooperating node information available to the first node, a second node (Flammer: col. 1, lines 53-57).

16.   Regarding claim 3, referring to claim 1, Brady in view of Flammer discloses that step (a) comprises randomly choosing by a first node, from cooperating node information available to the first node, a second node (Flammer: col. 1, lines 53-57). Brady in view of Flammer does not expressly disclose that step (a) comprises pseudo-randomly choosing by a first node, from

cooperating node information available to the first node, a second node; however, Examiner takes official notice that pseudo-random selection is another well-known selection technique that substitutes for random selection. It would have been obvious to one of ordinary skill in the art at the time of the invention to pseudo-randomly choose by a first node, from cooperating node information available to the first node, a second cooperating node in order to decrease the bandwidth used by the system to determine the topology of the system using a selection technique well-known in the art.

17.   Regarding claim 5, referring to claim 1, Brady in view of Flammer that step (a) comprises randomly or pseudorandoly choosing by a first node, from cooperating node information stored in the first node, one second node (Brady: col. 2, lines 48-67 and Flammer: col. 1, lines 53-57) where it is implicit that one node is chosen.

18.   Regarding claim 6, referring to claim 1, Brady in view of Flammer discloses that step (b) further comprises transmitting from the first node to the second node at least a portion of the cooperating node information available to the first node (Brady: col. 2, lines 48-67), said cooperating node information comprising a list of cooperating nodes and resources available (routes) at each cooperating node (Brady: col. 2, lines 48-67).

19.   Regarding claim 7, referring to claim 1, Brady in view of Flammer discloses that step (b) comprises transmitting from the first node to the second node at least a portion of the cooperating node information available to the first node, said at least a portion of the cooperating node information comprising all of the first node's cooperating node information (Brady: col. 2, lines 48-67 and col. 4, lines 18-21).

20.   Regarding claim 8, referring to claim 1, Brady in view of Flammer discloses that step (c) comprises periodically repeating steps (a) and (b) by each of the cooperating nodes (Brady: col. 2, lines 48-67 and col. 3, lines 45-55).

21.   Regarding claim 9, referring to claim 1, Brady in view of Flammer discloses that step (a) comprises selecting, by a first node, from cooperating node information available to the first node, a second cooperating node and a third cooperating node (Brady: col. 2, lines 48-67); and step (b) comprises transmitting from the first node to the second node and the third node the cooperating information available to the first node (Brady: col. 2, lines 48-67).

22.   Regarding claim 10, referring to claim 1, Brady in view of Flammer discloses that step (a) comprises randomly or pseudorandomly selecting, by a first node, from cooperating node information available to the first node, a small number of cooperating nodes (Brady: col. 2, lines 48-67); and step (b) comprises transmitting from the first node to the small number of cooperating nodes the cooperating information available to the first node (Brady: col. 2, lines 48-67) where a "small number" is a relative term that is open to a variety of interpretations.

23.   Regarding claim 11, referring to claim 1, Brady in view of Flammer discloses after step (b) and prior to step (c), the step of: (b1) merging, by the second node, the cooperating node information transmitted by the first node with cooperating node information available to the second node (Brady: col. 4, lines 18-41); and wherein step (c) comprises periodically repeating steps (a), (b), and (b1) (Brady: col. 2, lines 48-67 and col. 4, lines 18-41).

24.   Regarding claim 12, referring to claim 1, Brady in view of Flammer discloses prior to step (c), the steps of: (b1) requesting, by the first node, from the second node, at least a portion of the cooperating node information available to the second node (Brady: col. 2, lines 48-67);

(b2) receiving, by the first node, from the second node, at least a portion of the cooperating node

information available to the second node (Brady: col. 2, lines 48-67); and wherein step (c)

comprises periodically repeating steps (a), (b), (bl), and (b2) (Brady: col. 2, lines 48-67). Brady

in view of Flammer does not expressly disclose that the steps (b1) and (b2) occurs after step (b)

and prior to step (c); however, it would have been obvious to one of ordinary skill in the art at

the time of the invention that step (b) and steps (b1) and (b2) are interchangeable since a reversal

of the order of the steps will not result in a different outcome for the topology. As such, it would

have been obvious to one of ordinary skill in the art at the time of the invention to perform steps

(b1) and (b2) after step (b) and before step (c).

25.   Regarding claim 13, referring to claim 1, Brady in view of Flammer discloses prior to

step (c), the steps of (b1) merging, by the second node, the cooperating node information

transmitted by the first node with cooperating node information available to the second node

after step (b) (Brady: col. 4, lines 18-41); (b2) requesting, by the first node, from the selected

cooperating node, at least a portion of the cooperating node information available to the second

node (Brady: col. 2, lines 48-67); (b3) receiving, by the first node, from the selected cooperating

node, at least a portion of the cooperating node information available to the second node (Brady:

col. 2, lines 48-67); (b4) merging, by the first node, the cooperating node information transmitted

by the second node with cooperating node information available to the first node (Brady: col. 2,

lines 48-67); and wherein step (c) comprises periodically repeating steps (a), (b), (b l), (b2), (b3),

and (b4) (Brady: col. 2, lines 48-67). Brady in view of Flammer does not expressly disclose that

the steps (b2)-(b4) occurs after step (b) and prior to step (c); however, it would have been

obvious to one of ordinary skill in the art at the time of the invention that step (b) and steps (b2)-

(b4) are interchangeable since a reversal of the order of the steps will not result in a different outcome for the topology. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform steps (b2)-(b4) after step (b) and before step (c).

26.   Regarding claim 15, Brady discloses a method for discovery of cooperating nodes in a network of nodes in which each cooperating node has information about at least one other cooperating node, comprising the steps of: (a) selecting, by a first node, from cooperating node information available to the first node, a second cooperating node (col. 2, lines 48-67); (b) requesting, by the first node, from the second node, at least a portion of the cooperating node information available to the second node (col. 2, lines 48-67); (c) receiving, by the first node, from the second node, at least a portion of the cooperating node information available to the second node (col. 2, lines 48-67); (d) periodically repeating steps (a), (b), and (c) (col. 2, lines 48-67). Brady does not expressly disclose that the selecting is done either randomly or pesudorandomly. Flammer teaches, in a system for broadcasting information (transmitting to all neighbor nodes), that it is well known in the art to decrease overload in a network during a broadcast by "selectively but randomly address[ing] a small group of nodes in a reception region" (col. 1, lines 53-57). The combination of Brady and Flammer suggests randomly selecting a single neighbor node or a set of neighbor nodes from the entire list of neighbor nodes in order to reduce the overhead in the system at the cost of increasing the amount of time (increasing the number of repeated steps) it takes to determine the topology of the network. It would have been obvious to one of ordinary skill in the art at the time of the invention to randomly choose by a first node, from cooperating node information available to the first node, a

second cooperating node in order to decrease the bandwidth used by the system to determine the topology of the system.

27.   Regarding claim 16, referring to claim 15, Brady in view of Flammer discloses that step (a) comprises randomly choosing by a first node, from cooperating node information available to the first node, a second cooperating node (Flammer: col. 1, lines 53-57).

28.   Regarding claim 17, referring to claim 15, Brady in view of Flammer discloses that step (a) comprises randomly choosing by a first node, from cooperating node information available to the first node, a second node (Flammer: col. 1, lines 53-57). Brady in view of Flammer does not expressly disclose that step (a) comprises pseudo-randomly choosing by a first node, from cooperating node information available to the first node, a second node; however, Examiner takes official notice that pseudo-random selection is another well-known selection technique that substitutes for random selection. It would have been obvious to one of ordinary skill in the art at the time of the invention to pseudo-randomly choose by a first node, from cooperating node information available to the first node, a second cooperating node in order to decrease the bandwidth used by the system to determine the topology of the system using a selection technique well-known in the art.

29.   Regarding claim 19, referring to claim 15, Brady in view of Flammer discloses that step (a) comprises choosing by a first node, from cooperating node information stored in the first node, one cooperating node (Brady: col. 2, lines 48-67) where it is implicit that one cooperating node is chosen.

30.   Regarding claim 20, referring to claim 15, Brady in view of Flammer discloses that step (b) further comprises requesting, by the first node, from the second node, at least a portion of the

cooperating node information available to the second node (Brady: col. 2, lines 48-67), said

cooperating node information comprising a list of cooperating nodes and resources (routes)

available at each cooperating node (Brady: col. 2, lines 48-67).

31.   Regarding claim 21, referring to claim 15, Brady in view of Flammer discloses that step

(b) comprises requesting, by the first node, from the second node, at least a portion of the

cooperating node information available to the second node (Brady: col. 2, lines 48-67), said at

least a portion of the cooperating node information comprising all of the second node's

cooperating node information (Brady: col. 2, lines 48-67 and col. 4, lines 18-21).

32.   Regarding claim 22, referring to claim 15, Brady in view of Flammer discloses that step

(d) comprises periodically repeating steps (a), (b), and (c) by each of the cooperating nodes

(Brady: col. 2, lines 48-67 and col. 3, lines 45-55).

33.   Regarding claim 23, referring to claim 15, Brady in view of Flammer discloses that step

(a) comprises randomly or pseudorandomly selecting, by a first node, from cooperating node

information available to the first node, a second cooperating node and a third cooperating node

(Brady: col. 2, lines 48-67); step (b) comprises requesting, by the first node, from each of the two

selected cooperating nodes, at least a portion of the cooperating node information available to

each of the respective second node and third node (Brady: col. 2, lines 48-67); step (c) comprises

receiving, by the first node, from each of the second node and the third node, at least a portion of

the cooperating node information available to each of the second node and the third node (Brady:

col. 2, lines 48-67).

34.   Regarding claim 24, referring to claim 15, Brady in view of Flammer discloses that step

(a) comprises randomly or pseudorandomly selecting, by a first node, from cooperating node

information available to the first node, a small number of cooperating nodes (Brady: col. 2, lines 48-67); step (b) comprises requesting, by the first node, from each of the small number of selected cooperating nodes, at least a portion of the cooperating node information available to each of the respective selected cooperating nodes (Brady: col. 2, lines 48-67); step (c) comprises receiving, by the first node, from each of the small number of selected cooperating nodes, at least a portion of the cooperating node information available to each of the respective selected cooperating nodes (Brady: col. 2, lines 48-67) where a "small number" is a relative term that is open to a variety of interpretations.

35.   Regarding claim 25, referring to claim 15, Brady in view of Flammer discloses after step (c) and prior to step (d), the step of: (c l) merging, by the first node, the received cooperating node information with cooperating node information available to the first node (Brady: col. 4, lines 18-41) and wherein step (c) comprises periodically repeating steps (a), (b), (c l) and (c) (Brady: col. 2, lines 48-67 and col. 4, lines 18-41).

36.   Regarding claim 26, referring to claim 15, Brady in view of Flammer discloses before step (d) the step of: (aa) transmitting from the first node to the second node, at least a portion of the cooperating node information available to the first node (Brady: col. 2, lines 48-67); and wherein step (d) comprises periodically repeating steps (aa), (a), (b), and (c) (Brady: col. 2, lines 48-67).

37.   Regarding claim 27 referring to claim 26, Brady in view of Flammer discloses after step (aa), the step of (bb) merging, by the second node, the cooperating node information transmitted by the first node with cooperating node information available to the second node (Brady: col. 4,

lines 18-41) and wherein step (d) comprises periodically repeating steps (aa), (bb), (a), (b), and

(c) (Brady: col. 2, lines 48-67 and col. 4, lines 18-41).

Conclusion

38.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Serkowski (USPN 5,914,939) see col. 1, lines 11-25 and col. 3, line 8-col. 4, line 9

which pertains to overloading a network by broadcasting topology updates, merging routing

tables, and allowing changes to quickly propagate through the network. Conlon (USPN

5,051,987) see entire document which pertains to discovering the topology of a network.

39.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The

examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2665

Daniel J. Ryman

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